APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,368	10/03/2001	Jian Kang Wu	P20715.P02	6169

				EXAMINER
7055	7590	09/16/2004		AMINI, JAVID A

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ART UNIT	PAPER NUMBER
2672	11

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	09/786,368	WU ET AL.
Office Action Summary	Examiner	Art Unit	
	Javid A Amini	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>08 June 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24 and 27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

Response to Arguments

Applicant's arguments filed June 08, 2004 have been fully considered but they are not

persuasive.

- Applicant on pages 9-10 lines 16-21 and 1-12 respectively argues Inselberg the

  reference teaches only the distance between pairs of image points, and does not

  teach the multi features of the line points. And also Applicant argues that there is

  no disclosure of extracting features from the sampled data, or of how these

  features can be used to represent characteristics of the line points. Examiner's

  reply: by reading the claim language in claim 1, a person skill in the art would

  have been recognizing the similarities of claim invention of the reference. (e.g.

  Applicant discloses in preamble of claim 1 "A method ...... at least one of a

  colour and a grayscale image .... ") . The reference Inselberg uses a <u>bitmap</u> of an

  image (see col. 5, line 24). It is well known in the art that each bit in the bitmap or

  in a bit image corresponds to one pixel (dot) on the screen. In a black and white

  display each pixel is either white or black, so a single bit can represent it. The

  pattern of "0s" and 1s in the bit image then determines the pattern of white and

  black dots forming an image on the screen. In a color display the corresponding

  description of on-screen bits is called a pixel image because more that one bit is

  needed to represent each pixel. Inselberg in fig. 7 steps 70, 72, 74 clearly

  demonstrates extracting features from the sampled image data. If the product (in

  the present invention is detecting a line) in the product-by-process claim is the

  same as or obvious from a product of the prior art, the claim is unpatentable even

though the prior product was made by a different process." In re Thorpe, 777

F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

- Applicant on page 10 lines 3-21 argues that the reference Inselberg does not

   extract multiple features from the collected sample data to represent

   characteristics of the line points. Examiner's reply: Inselberg in fig. 7 step 72

   discloses the distance between two points and on the other hand teaches the

   location of the lines (x and y locations), therefore Inselberg discloses multiple

   features from sampled data. Inselberg teaches in figs. 1-5B at least two-

   dimensional feature space (x and y).

- Examiner's suggestion: Applicant would have amended claim 1 language in step

   (e) to read as follows: "(e) ..... detected line points within 8-neighborhood .....".

   Applicant could have incorporated the implementation of similarity between two

   points on page 11 lines 9-17 and a normal distribution for implementation of each

   pixel see page 18 lines 4-16 into the claim language.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making
and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
contemplated by the inventor of carrying out his invention.

1.   Claims 8-9 rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which

is not enabling. "The error identification and correction" critical or essential to the practice of the

invention, and is not explicitly enabled by the disclosure. See In re Mayhew, 527 F.2d 1229, 188

USPQ 356 (CCPA 1976). Applicant on page 21 lines 3-12 of specification discloses user interaction at step 240 can correct these errors. But Applicant does not illustrate the steps of how does the implementation of the error identification and correction take a place?

2.   Claim 8 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant in claim 8 discloses, "the features at each step ....are independently selected", meaning: the features are not prioritized. Applicant should describe clearly how "the features at each step ....are independently selected".

3.   Claim 9 rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The definition/range/value or etc. of the terms "A minimum area" critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Applicant on page 17 lines 8-12 discloses the features with the clusters being chosen so as to minimize the space. Applicant claims in claim 9 that the cluster occupy a minimum area in feature space, but does not specify explicitly the range of "a minimum area".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 18-24, and 27-29 rejected under 35 U.S.C. 102(e) as being anticipated by

Inselberg et al. (hereinafter referred as an Inselberg).

4.   Claims 1, 27 and 29.

A method for the vectorization of line objects in at least one of a colour and a grayscale image

comprising: Inselberg in figs. 8 and 9 illustrates this limitation "collecting sample data of line

points on line objects within the image", Inselberg in fig. 9 illustrates the size the length the

angles and other features of the line points, "extracting multiple features from the collected

sample data to represent characteristics of the line points;" Inselberg in figs. 8 and 9 illustrates a

multi-dimensional line points, "grouping the data into a plurality of clusters in a

multi-dimensional feature space, each cluster comprising a plurality of line points having feature

measures within a selected criteria set", Inselberg in fig. 14 illustrates the limitation of "detecting

line points by matching image points to the clusters and rejecting image points not falling within

any cluster;" Inselberg in figs. 8 and 9 illustrates the step of "performing a line tracing operation

based on the detected line points and features"; Inselberg in figs. 6A and 6B steps 34 and 56

illustrates identifying and correcting possible errors".

5.   Claim 2.

Inselberg in fig. 7 illustrates the step of "the sample data is collected interactively by a user

identifying two points on a line the sample data corresponding to line points being between the

identified points", in step 72.

6.   Claims 18-24, 28

Applicant discloses an interactive process in which possible errors are presented to a user for

verification. Inselberg in col. 13, lines 40-55 teaches that the problem of erroneous line

selections is very important in the art because most of the techniques developed using Hough

transforms will find such erroneous lines (false detections). The method of Inselberg's

invention, to prevent erroneous line detections, imposes the image point pair distance interval to

eliminate most transform points from the cluster counts.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claims 3-7 and 10-17 rejected under 35 U.S.C. 103(a) as being unpatentable over

Inselberg, and further in view of Hamid K. Aghajan (hereinafter referred as a Hamid).

7.   Claims 3 -7.

Inselberg does not explicitly specify the claim language as "locating a line center of each point",

but Inselberg in fig. 7 step 88 teaches how to locate cluster center point and map it to a detected

line in image plane. However, Hamid in fig. 1 illustrates how to detect a line with and without an

angle, see equations 1-2. It has been obvious to a person skill in the art to extract the length of

the line by counting the number of the pixels as Hamid shown in fig. 1 as a Z_1. Applicant in

claims 5 and 6 discloses that the peak of a colour ridge profile of the line at a location of the

point. Hamid in fig. 5a-b illustrates these limitations. Examiner's comment: Applicant should

provide a comparison to illustrates the advantages of the claim invention over the prior art. The

prior art Hamid in fig. 5 illustrates the obviousness of the limitations as applicant claimed in

claim 7. Thus, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to incorporate the teaching of Hamid into Inselberg in order to take an

advantage of calculating accurately the line with an angle by using equation 2 of Hamid's

invention see page V-90. An access to the equations would be beneficial to the user to have more

information of how to detect a line.

8.   Claims 12-17.

Applicant in claim 12 and 13 discloses detected line points act as seeds and the algorithm is

carried out automatically. The term "act as a seed" is obvious see Hamid's illustration in fig. 5. A

computer does the equations in Hamid's invention, and that is carried out automatically.

Applicant in claims 14-17 discloses best matching line point, potential line points, the two line

segments are merged, and the algorithm is performed interactively by a user … until no more

acceptable line points are found. Hamid in fig. 5 illustrates best matching line, in fig. 5b the

results of merged segments and potential line points shown. Hamid in col. 2 page V-89 first

paragraph discloses potential application areas of the invention that requires user interactive

performance to select an area.

9.   Claims 10-11

Applicant claims the first is matching colour data. Hamid in fig. 5 illustrates the detection of the

line from Aerial image (gray-scale image). Then the prior art Hamid in fig. 1 estimates the

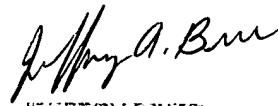results or as Applicant claims in claim 11 "other data".

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Javid A Amini whose telephone number is 703-605-4248. The

examiner can normally be reached on 8-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Michael Razavi can be reached on 703-305-4713. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

                                        Javid A Amini
                                        Examiner
                                        Art Unit 2672

Javid Amini

                                        JEFFERY BRIER
                                        PRIMARY EXAMINER